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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,155	10/04/2006	Kevin Gray	D1990-1N	1058

29062 7590 01/15/2008
VERENIUM CORPORATION
4955 DIRECTORS PLACE
SAN DIEGO, CA 92121

EXAMINER	
CHOWDHURY, IQBAL HOSSAIN	
ART UNIT	**PAPER NUMBER**
1652	

MAIL DATE	DELIVERY MODE
01/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,155	GRAY ET AL.	
	Examiner	Art Unit	
	Iqbal H. Chowdhury, Ph.D.	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1, 25, 29, 32-34, 37, 40, 42, 44, 46, 48-49, 51-52, 72, 82-83, 86-87, 89, 91, 94, 96, 103, 110, 114, 124, 129, 160, 162, 166, 169-170, 172-180, 182, 184-185, 189-191, 207, 209, 213, 216-217* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,25,29,32-34,37,40,42,44,46,48,49,51,52,72,82,83,86,87,89,91,94,96,103,110,114,124,129,160,162,166,169,170,172-180,182,184,185,189-191,207,209,213,216 and 217.

DETAILED ACTION

Election/Restrictions

This application is a 371 of PCT/US04/08541.

The preliminary amendment filed on October 4, 2006 amending claims 1, 25, 29, 32-34, 37, 40, 42, 44, 46, 48-49, 51-52, 72, 82-83, 86-87, 89, 91, 94, 96, 103, 110, 114, 124, 129, 160, 162, 166, 169-170, 172-180, 182, 184-185, 189-191, 207, 209, 213, 216-217, canceling claims 2-24, 26-28, 30-31, 35-36, 38-39, 41, 43, 45, 47, 50, 53-71, 73-81, 84-85, 88, 90, 92-93, 95, 97-102, 104-109, 111-113, 115-123, 125-128, 130-159, 161, 163-165, 167-168, 171, 181, 183, 186, 188, 192-206, 208, 210-212, 214-215, and 218 has been entered.

Claims 1, 25, 29, 32-34, 37, 40, 42, 44, 46, 48-49, 51-52, 72, 82-83, 86-87, 89, 91, 94, 96, 103, 110, 114, 124, 129, 160, 162, 166, 169-170, 172-180, 182, 184-185, 189-191, 207, 209, 213, 216-217 are currently pending in the instant application.

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group, I claim(s) 1, 25, 29, 32-34, 37, 103, 216, drawn to an isolated polynucleotide encoding a polypeptide with a glucosidase activity or encoding a chimeric polypeptide having glucosidase activity, an amplification primer pair for amplifying a gene encoding said polypeptide having

glucosidase activity, a probe, a vector or expression cassette or a cloning vehicle, a transformed host cell, and a method for producing said polypeptide.

Group, II claims 42 and 44, drawn to a transgenic plant or seed comprising a gene encoding polypeptide having glucosidase activity.

Group, III claim(s) 46, drawn to an antisense oligonucleotide comprising a nucleic acid sequence complementary to the sequences of claim 1.

Group, IV claims 48, drawn to a method of inhibiting the translation of a glucosidase message in a cell by administering antisense oligonucleotide molecule.

Group, V claim(s) 49, drawn to a double stranded inhibitory RNA (RNAi) molecule.

Group, VI claims 51, drawn to a method of inhibiting the expression of glucosidase protein in cells.

Group, VII claim(s) 52, 72, 82, 83, 86, 166, 191, 209, 213, drawn to a recombinant polypeptide with a glucosidase activity or a protein preparation or a homodimer or a heterodimer polypeptide, a chimeric protein, a composition, a pharmaceutical composition or a detergent composition.

Group, VIII claim(s) 89, drawn to an array comprising the immobilized polypeptide.

Group, IX claims 91, drawn to an isolated or recombinant antibody that specifically binds to the polypeptide of claim 52.

Group, X claims 94, 172, drawn to a food, a feed, a food supplement or a feed supplement comprising the polypeptide of claim 52.

Group, XI claim(s) 96, drawn to an edible enzyme delivery matrix comprising the polypeptide of claim 52.

Group, XII claim(s) 110, drawn to a method for identifying a modulator of a glucosidase activity.

Group, XIII claim(s) 114, drawn to a computer system comprising a processor and a data storage device, wherein said data storage device has stored thereon a polypeptide sequence or nucleic acid sequence of claims 1 or 52.

Group, XIV claim(s) 124, drawn to a method for isolating or recovering a nucleic acid encoding a polypeptide with a glucosidase activity.

Group, XV claims 129, drawn to a method of generating a variant of a nucleic acid molecule encoding a polypeptide with a glucosidase activity.

Group, XVI claim(s) 160, 170, drawn to a method for hydrolyzing a starch by using polypeptide of claim 52.

Group, XVII claims 162, drawn to a method for liquefying or removing a starch from a composition by using the polypeptide of claim 52.

Group, XVIII claim(s) 169, drawn to a method for washing an object by using the polypeptide of claim 52.

Group, XIX claim(s) 173, drawn to a composition comprising starch and polypeptide of claim 52.

Group, XX claims 174, drawn to a textile comprising the polypeptide of claim 52.

Group, XXI claims 175, a method for textile desizing by using polypeptide of claim 52.

Group, XXII claim(s) 176, drawn to a paper or paper product or paper pulp comprising the polypeptide of claim 52.

Group, XXIII claim(s) 177, drawn to a method for deinking of paper or fibers by using the polypeptide of claim 52.

Group, XXIV claim(s) 178, drawn to a method for treatment of lignocellulosic fibers by using polypeptide claim 52.

Group, XXV claim(s) 179, drawn to a high maltose or glucose liquid or syrup by using the polypeptide of claim 52.

Group, XXVI claims 180, drawn to a method producing high-maltose or high-glucose syrup by using the polypeptide of claim 52.

Group, XXVII claim(s) 182, drawn to a method for improving the flow of starch containing fluids by using the polypeptide of claim 52.

Group, XXVIII claims 184, drawn to an anti-staling composition comprising the polypeptide of claim 52.

Group, XXIX claim(s) 185, drawn to a method for preventing staling of a baked product by using the polypeptide of claim 52.

Group, XXX claim(s) 187, drawn to a method for using glucosidase in brewing or alcohol production.

Group, XXXI claims 189-190, drawn to an alcoholic beverage including beer.

Group, XXXII claims 207, drawn to an isolated or recombinant signal sequence.

Group, XXXIII claims 217, drawn to an oral care product comprising the polypeptide of claim 52.

For each inventions I-XXXIII above, restriction to one of the following is also required under 35 U.S.C. 121 and 372. Therefore, election is required of one of inventions I-XXXIII **and** one of inventions (A) – (L).

(A). protein of SEQ ID NO: 2 or a nucleic acid encoding SEQ ID NO: 2.

(B). protein of SEQ ID NO: 4 or a nucleic acid encoding SEQ ID NO: 4.

(C). protein of SEQ ID NO: 6 or a nucleic acid encoding SEQ ID NO: 6.

(D). protein of SEQ ID NO: 8 or a nucleic acid encoding SEQ ID NO: 8.

(E). protein of SEQ ID NO: 10 or a nucleic acid encoding SEQ ID NO: 10.

(F). protein of SEQ ID NO: 12 or a nucleic acid encoding SEQ ID NO: 12.

(G). protein of SEQ ID NO: 14 or a nucleic acid encoding SEQ ID NO: 14.

(H). protein of SEQ ID NO: 16 or a nucleic acid encoding SEQ ID NO: 16.

(I). protein of SEQ ID NO: 18 or a nucleic acid encoding SEQ ID NO: 18.

(J). protein of SEQ ID NO: 20 or a nucleic acid encoding SEQ ID NO: 20.

(K). protein of SEQ ID NO: 22 or a nucleic acid encoding SEQ ID NO: 22.

(L). protein of SEQ ID NO: 24 or a nucleic acid encoding SEQ ID NO: 24.

2. The inventions listed as Groups I - XXXIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The polynucleotide encoding a polypeptide glucosidase of Group I, polypeptide glucosidase of Group VII, transgenic plant of Group II, antisense nucleic acid of Group III, RNAi of Group V, array of Group VIII, antibody of Group IX, food or feed of Group X, matrix of Group XI, computer system of Group XIII, composition comprising starch of Group XIX, textile of group XX, paper of Group XXII, syrup of Group XXIII, anti-staling composition of Group XXVIII, alcoholic beverage of Group XXXI, signal sequence of Group XXXII and oral acre product of Group XXXIII are each unrelated and chemically distinct entities. The only shared technical feature of these groups is that they all

relate to polynucleotide encoding a polypeptide glucosidase or polypeptide glucosidase. However, this shared technical feature is not a "special technical feature" as defined by PCT Rule 13.2 as it does not define a contribution over the art. A polynucleotide encoding polypeptide glucosidase is known in the art (US PGPUB 2006/0294620, publication 12/28/2006, claim priority of US provisional application 60/423, 626, filed on 10/31/2002), which is 100% identical to SEQ ID NO: 1 and 2 of the instant application (see sequence alignment). Similarly, a polypeptide having alpha glucosidase activity is known in the art (GenBank Accession No. NP_637823; alpha glucosidase, created on 5/28/2002), which is 80% identical to SEQ ID NO: 2 of the instant application (see sequence alignment). Thus, a polynucleotide encoding polypeptide glucosidase or polypeptide having glucosidase activity does not make contribution over the prior art and lack unity of invention.

3. The antibody of Group IX does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the antibody of Groups IX.

4. The array of Group VIII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the array of Groups VIII.

5. The food or feed of Group X does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the food or feed of Groups X.

6. The matrix of Group XI does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the matrix of Groups XI.

7. The syrup of Group XXV does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the syrup of Groups XXV.

8. The composition comprising starch and polypeptide of Group XIX does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the composition of Group XIX.

9. The textile of Group XX does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the textile of Groups XX.

10. The paper of Group XXII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the paper of Groups XXII.

11. The anti-staling composition of Group XXVIII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the anti-staling of Groups XXVIII.

12. The alcoholic beverage of Group XXXI does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the alcoholic beverage of Groups XXXI.

13. The signal sequence of Group XXXII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the signal sequence of Groups XXXII.

14. The oral care product of Group XXXIII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the oral care product of Groups XXXIII.

15. A transgenic plant of Group II does not share any "special technical feature" with Group VII as the polypeptide of Group VII and transgenic plant of Group II are independent and distinct.

16. A method of inhibition of translation of Groups IV and VI, does not share any "special technical feature" with Group VII as the polypeptide of Group VII is neither made nor used by the methods of inhibition of Group IV and VI.

17. A method of isolating nucleic acid of Group XIV, does not share any "special technical feature" with Group VII as the polypeptide of Group VII is neither made nor used by the method of Group XIV.

18. A method of generating of variant of Groups XV, does not share any "special technical feature" with Group VII as the polypeptide of Group VII is neither made nor used by the method of Group XV.

19. A method of identifying of modulator of glucosidase of Group XII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XII.

20. A method of washing an object of Group XVIII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XVIII.

21. A method of textile desizing of Group XXI does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXI.

22. A method of deinking of paper of Group XXIII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXIII.

23. A method of treatment of lignocellulosic fiber of Group XXIV does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXIV.

24. A method of producing high maltose syrup of Group XXVI does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXVI.

25. A method of improving the flow of starch containing fluid of Group XXVII does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXVII.

26. A method of preventing staling of baked product of Group XXIX does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXIX.

27. A method of producing alcohol of Group XXX does not share any "special technical feature" with Group I as the polynucleotides of Group I are neither made nor used by the method of Group XXX.

28. The methods of Groups IV, VI, XII, XIV-XVIII, XXI, XXIII-XXIV, XXVI-XXVII, and XXIX-XXX do not have unity of invention with each other as each methods comprises unrelated steps and use different products, and produce different effects.

29. The different nucleotides encoding proteins of Group (A)-(N), which are polypeptides having glucosidase activity, do not have special technical feature among each other because they all represent structurally different polypeptides and polynucleotide encoding them. As mentioned

above, a DNA encoding a polypeptide is known in the art and does not make contribution over the prior art. Therefore, they all lack special technical feature.

37 CFR 1.475 does not provide for multiple products and/or methods within a single application. Therefore, inventions of Group I - XXXIII lack unity of invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process

claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Iqbal Chowdhury whose telephone number is 571-272-8137. The examiner can normally be reached on 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 703-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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>**ref|NP_637823.1|** alpha-glucosidase [Xanthomonas campestris pv. campestris str.
ATCC 33913]

ref|YP_242728.1| alpha-glucosidase [Xanthomonas campestris pv. campestris str.
8004]

gb|AAM41747.1| alpha-glucosidase [Xanthomonas campestris pv. campestris str.
ATCC 33913]

gb|AAY48708.1| alpha-glucosidase [Xanthomonas campestris pv. campestris str.
8004]
Length=538

GENE ID: 998232 aglA | protein coding
[Xanthomonas campestris pv. campestris str. ATCC 33913]
(10 or fewer PubMed links)

Score = 917 bits (2371), Expect = 0.0
Identities = 428/534 (80%), Positives = 468/534 (87%), Gaps = 0/534 (0%)
Frame = +1

```
Query  97    MSQTPWWRGAVIYQIYPRSFLDANGDGVGDLPGIIDRLEYVAALGVDAIWVSPFFTSPMA  276
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Sbjct  1     MSQTPWWRGAVIYQIYPRSFLDSNGDGVGDLPGIIAKLDYIAGLGVDAIWISPFFKSPMA  60

Query  277   DFGYDIADHRDVDPLFGTLADFDRLLAKAHALGLKVMIDQVFSHTSIDHAWFRESRQDRT  456
             DFGYDIAD+R VDPLFG+L DFDRLL KAH LGLKVMIDQV SH+SI H WF+ESRQDR+
Sbjct  61    DFGYDIADYRAVDPLFGSLVDFDRLLEKAHGLGLKVMIDQVLSHSSIAHVWFQESRQDRS  120

Query  457   NPKADWYVWADPREDGTPPNNWMSIFGGVAWQWEPRREQYFLHNFLADQPDLDFHNPAVQ  636
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Sbjct  121   NPKADWYVWADPREDGTPPNNWLSLFGGVAWQWEPRREQYYLHNFLVDQPDLNFHNAEVQ  180

Query  637   QATLDYVRFWLDRGVDGFRLDSINFCFHDAQLRDNPAKPLEKRVGRGFSADNPYAYQYHY  816
             QATLD VRFWLDRGVDGFRLD+INFCFHDAQLRDNPAKP +KRVGRGFSADNPYAYQYHY
Sbjct  181   QATLDNVRFWLDRGVDGFRLDAINFCFHDAQLRDNPAKPADKRVGRGFSADNPYAYQYHY  240

Query  817   YNNTQPENIGFIERLRGLLDEYPGTVSLGEISAEDSLATTAEYTAPGRLHMGYSFELLVK  996
             +NNTQPEN+ F+ERLRGLLD YP  VSLGEIS+EDSLATTAEYTA GRLHMGYSFELLV+
Sbjct  241   FNNTQPENLAFLERLRGLLDLYPNAVSLGEISSEDSLATTAEYTAQGRLHMGYSFELLVQ  300

Query  997   DFSAGYIRDTVSRLEATMTEGWPCWAISNHDVERAVTRWGGHPARPRLARMLVALLCSLR  1176
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Sbjct  301   DYSAAYIRDTVSRLEATMLEGWPCWAISNHDVVRAVTRWGGAHATPAFARMVVALLCSLR  360

Query  1177  GSICLYQGEELGLGEADVPFEALQDPYGITFWPNFKGRDGCRTPMPWIDAPLAGFTSGEP  1356
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Sbjct  361   GSICLYQGEELGLSEAEVAFEDLQDPYGITFWPTFKGRDGCRTPMPWTDAPSAGFTSGKP  420

Query  1357  WLPIPAEHRAAAVAVQEHDPHSVLNAFRQFLAWRRTMPTLLVGDIVFLQTAEPVLMFERR  1536
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Query  1537  HAGETLLLAFNLAADTARVALPAGSWQPMHVPGPDVGQADGGTLVLPAQSMYCA  1698
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Sbjct  481   HAGQVVLLAFNLSADPADLALPAGEWEQVDVPGVELGAMDGGHLRLAGHAVVAA  534
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Search of SEQ ID NO: 1 translated to PB against protein database.